

Application No. 10/731,606
Reply to Office Action of September 2, 2009

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REMARKS

In the Office Action dated September 2, 2009, claims 1-26 are pending and claims 1-26 stand rejected. Reconsideration is requested at least for the reasons discussed hereinbelow.

The above amendments correct clerical errors and provide more grammatically correct language. No new matter is added.

The present invention, as set forth in claim 1, is directed to an image forming apparatus in combination with a sheet having one or a plurality of memories. The image forming apparatus comprises an acquisition unit for acquiring an image signal; an image forming unit for forming an image based on the image signal acquired by said acquisition unit; an encryption key creating unit for creating an encryption key when said acquisition unit acquires the image signal; an encrypting unit for encrypting the image signal with the encryption key created by said encryption key creating unit; a writing unit for writing the encryption key and the encrypted image signal into the one or a plurality of memories on said sheet; a reading unit for reading an encrypted image and encryption key from the sheet; and a decryption unit for decrypting the encrypted image using the encryption key read by the reading unit.

Thus, the image forming apparatus can create an encryption key when receiving an image signal and encrypt the image received, then, write the encrypted image and encryption key to a memory formed on a sheet. The apparatus also can read the encryption key and encrypted image from the sheet and decrypt the encrypted image using the encryption key.

The present invention, as set forth in claim 12, is directed to an image forming apparatus in combination with a sheet having one or a plurality of memories. The image forming apparatus includes an image reading unit for reading a first image formed on the sheet having one or a plurality of memories storing the encryption key, and an image forming unit for forming a second image on another sheet, based on an image signal of the first image read by said image reading unit. The apparatus further comprises a memory reading unit for reading the encryption

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key from the memory on said sheet having one or a plurality of memories when said image reading unit reads the first image; and a decrypting unit for decrypting the image signal of the first image read by said image reading unit, with the encryption key read by said memory reading unit, wherein said image forming unit forms the second image based on the image signal decrypted by said decrypting unit on said another sheet.

Claims 1-4, 12, 13 and 21-24 are rejected under 35 U.S.C. §103(a) over Okamoto et al (US 6,659,353; "Okamoto") in view of Hutchison (US 2003/0145218). Okamoto discloses a method for checking sheets for forgery wherein the sheet is provided with an electronic circuit chip from which information can be read out or written and having visible information. Although Okamoto describes the performance of acquiring an image signal (the Examiner cites col. 7, lines 5-10), the image signal acquired by the scanner 43 of Okamoto is not encrypted with an encryption key created when the image is acquired. Further, the encrypted image is not written into a memory on a sheet along with the encryption key being written into a memory on the sheet. Similarly, the other references to passages in Okamoto fail to teach or suggest the presently claimed image forming apparatus in combination with a sheet having one or a plurality of memories, as set forth in present claims 1 or 12, or claims dependent therefrom.

Thus, Okamoto at least fails to describe at least "writing the encryption key into a memory on the sheet" and "reading the encryption key from the memory on said sheet."

As information peculiar to the sheet to be stored in an electronic circuit chip, there is a description in Okamoto about information, for example, physical/chemical information of the electronic circuit chip and information of shapes or geometrical factors of distinctively discernible sheet constituent elements and so on, in addition to visible information. However, Okamoto fails to describe how to obtain an encryption key to be used at the time of encryption or decryption, much less storing the encryption key in the electronic circuit chip on the sheet.

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The Examiner admits that Okamoto fails to "disclose an encryption key creating unit for creating an encryption key when said acquisition unit acquires an image signal." However, Okamoto also fails to disclose or suggest at least the following claimed elements of claim 1:

an encrypting unit for encrypting the image signal with the
encryption key created by said encryption key creating unit;

a writing unit for writing the encryption key and the encrypted image signal into the one or a plurality of memories
on said sheet;

a reading unit for reading an encrypted image and encryption key from the sheet; and

a decryption unit for decrypting the encrypted image using the encryption key read by the reading unit;

or at least the following claimed elements of claim 12:

a sheet having one or a plurality of memories storing an encryption key;

a memory reading unit for reading the encryption key from the memory on said sheet having one or a plurality of memories when said image reading unit reads the first image;
and

a decrypting unit for decrypting the image signal of the first image read by said image reading unit, with the encryption key read by said memory reading unit,

wherein said image forming unit forms the second image based on the image signal decrypted by said decrypting unit on said another sheet.

The Examiner cites new reference Hutchison to make up for the acknowledged deficiency in Okamoto. However, Hutchison fails to make up for the deficiencies in Okamoto. Hutchison discloses encryption of image data in a digital copier. As such, Hutchison discloses creating an encryption key and storing it in the copier memory, in an external computer or in a smart card. However, there is no disclosure or suggestion for storing the encryption key in a

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memory on a sheet containing the image encrypted with the encryption key. The only disclosure or suggestion in Hutchison for storing both the encrypted image and the encryption key together is storing them in the copier memory. The advantage of the present invention is that the encrypted image may be transported to various locations and, yet, a decrypted image can be printed at any location having an image forming apparatus, as claimed, because the encrypted image and encryption key are together on the transportable sheet.

Thus, Hutchison also fails to teach or suggest

- i. an image forming apparatus in combination with a sheet having one or a plurality of memories;
- ii. a writing unit for writing the encryption key into and the encrypted image signal into the one or a plurality of memories on said sheet;
- iii. an image forming unit forms a first image based on the image signal encrypted by said encrypting unit on a sheet having one or a plurality of memories; and
- iv. said image forming unit forms a second image on said sheet having one or a plurality of memories based on the image signal decrypted by said decrypting unit with the encryption key read by said memory reading unit when the first image is read.

Although Hutchison describes an encryption key stored in a memory, there is not even a hint of a suggestion that the memory for storage of the encryption key be contained in a sheet bearing the encrypted image.

Thus, Hutchison also fails to teach or suggest at least the following claimed elements of claim 1:

an image forming apparatus in combination with a sheet having one or a plurality of memories;

a writing unit for writing the encryption key and the encrypted image signal into the one or a plurality of memories on said sheet;

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a reading unit for reading an encrypted image and encryption key from the sheet; and

a decryption unit for decrypting the encrypted image using the encryption key read by the reading unit;

or at least the following claimed elements of claim 12:

an image forming apparatus in combination with a sheet having one or a plurality of memories storing an encryption key;

a memory reading unit for reading the encryption key from the memory on said sheet having one or a plurality of memories when said image reading unit reads the first image; and

a decrypting unit for decrypting the image signal of the first image read by said image reading unit, with the encryption key read by said memory reading unit,

wherein said image forming unit forms a second image based on the image signal decrypted by said decrypting unit on said another sheet.

Thus, it is not seen how any combination of Okamoto and Hutchison would suggest the claimed invention to one of ordinary skill in the art.

Regarding claim 2, neither Okamoto nor Hutchison even suggest that the encryption key be stored in a memory on the sheet. Thus, it is not seen how any combination of Okamoto and Hutchison would suggest "a memory reading unit for reading the encryption key from memory when said image reading unit reads the image," as claimed herein.

Regarding claim 3, it is not seen how any combination of Okamoto and Hutchison would suggest "said writing unit writes the encryption key and the information acquired or created

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by said information acquiring/creating unit into the same memory, or different memories on said sheet having one or a plurality of memories,” as claimed herein.

Regarding claim 4 and 13, it is not seen how any combination of Okamoto and Hutchison would suggest “said memory reading unit **reads the encryption key and information about the image encrypted with the encryption key from the same or different memories on said sheet having one or a plurality of memories when said image reading unit reads the image,** and said image forming apparatus further comprises a display unit for displaying the information read by said memory reading unit,” as claimed herein.

Regarding claim 23, it is not seen how any combination of Okamoto and Hutchison would suggest “sheet comprises a first memory **containing an encryption key** and a second memory containing an encrypted image,” as claimed herein.

Regarding claim 24, it is not seen how any combination of Okamoto and Hutchison would suggest “said memory reading unit **reads the encryption key and information about the image encrypted with the encryption key from said first memory on said sheet when said image reading unit reads the image,** and said image forming apparatus further comprises a display unit for displaying the information read by said memory reading unit,” as claimed herein.

It is not seen how any combination of Okamoto and Hutchison would provide the presently claimed invention. Thus, it is not seen how the presently claimed invention would have been obvious to one of ordinary skill in the art in view of any combination of Okamoto and Hutchison.

Claims 5-11, 14-20, 25 and 26 are rejected under 35 U.S.C. §103(a) over Okamoto in view of Hutchison in further view of Harada et al (US 2003/0007640; “Harada”). Okamoto and Hutchison are discussed above. Claims 5-11, 14-20, 25 and 26 are patentable for at least the

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same reasons as discussed above. Harrada *fails* to make up for the deficiencies in Okamoto and Hutchison. Harrada also fails to teach or suggest, for example:

an image forming apparatus having, for example, a writing unit for **writing the encryption key** into the memory on said sheet **having one or a plurality of memories**,

an image reading unit for reading the image formed on said sheet having one or a plurality of memories and a memory reading unit for reading the **encryption key** from the memory **when** said image reading unit reads the image,

an **information acquiring/creating unit** for acquiring or creating information **about the image encrypted with the encryption key**, wherein said writing unit writes the **encryption key and the information acquired or created** by said information acquiring/creating unit into the **same memory, or different memories on said sheet** having one or a plurality of memories, or

a memory reading unit that reads the **encryption key and information about the image encrypted with the encryption key** from the same memory, or different memories **on said sheet** having one or a plurality of memories, when said image reading unit reads the image,

as claimed herein.

Thus, it is not seen how the presently claimed invention would have been obvious to one of ordinary skill in the art in view of any combination of Okamoto, Hutchison and Harada.

In view of the discussion above, Applicant respectfully submits that the pending application is in condition for allowance. An early reconsideration and notice of allowance are earnestly solicited.

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If for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. 04-1105.

Dated: December 2, 2009

Respectfully submitted,

By 

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